

Sub
a1

$\frac{d}{dt} \left(\frac{\partial L}{\partial v^i} \right) = \frac{\partial L}{\partial x^i}$

1. A combined touch panel and light for use with a display having a substantially planar surface, comprising:
 - a source of illumination;
 - a light guide for receiving light from said source of illumination and for propagating light in a direction substantially parallel to a display surface of said display; and
 - at least one sensor for detecting an interruption in propagation of light in a direction substantially parallel to said display surface.
2. The apparatus of claim 1, wherein said lightguide comprises at least one of prisms and lenses.
3. The apparatus of claim 1, wherein the lightguide distributes the illumination so that at least a portion of the illumination travels in two perpendicular directions.
4. The apparatus of claim 1, wherein the lightguide distributes the light in a plurality of different paths; and a sensor is positioned to receiving illumination from at least one of said paths.

5. The apparatus of claim 4, wherein the paths are substantially parallel.

6. The apparatus of claim 1, wherein said illumination radiates from one point.

7. The apparatus of claim 1, wherein said illumination radiates in a substantially linear manner, adjacent to at least one edge of the display.

8. The apparatus of claim 6, wherein said at least one sensor is an analog sensor.

9. The apparatus of claim 1, wherein said at least one sensor is a threshold detection sensor.

10. The apparatus of claim 1, wherein said at least one sensor comprises a plurality of sensors disposed along at least one edge of said display surface.

11. The apparatus of claim 11, further comprising:

a combiner for combining outputs of said sensors and for defining a location of an interruption of illumination of at least one of said plurality of sensors.

12. The apparatus of claim 11, said combiner defines a location of an interruption of illumination of a group of said sensors.

13. The apparatus of claim 1, wherein said source of illumination is a light emitting diode.

14. The apparatus of claim 1, wherein said light guide comprises a substantially planar member extending over said display surface.

15. The apparatus of claim 1, wherein said light guide is formed of a resilient, deformable material which conducts light to said at least one sensor.

16. The apparatus of claim 15, further comprising a resilient, deformable substantially planar layer of material which conducts light to said at least one sensor, said layer being disposed over said light guide.

17. The apparatus of claim 1, in combination with a display panel, said apparatus being sized, shaped and positioned to illuminate said display panel.

18. The apparatus of claim 17, wherein said display panel is a liquid crystal display panel.

19. The apparatus of claim 17, wherein said liquid crystal display panel is front illuminated by said illumination.

20. The apparatus of claim 17, wherein said liquid crystal display panel is back illuminated by said illumination.

21. The apparatus of claim 17, in combination with a portable electronic device, said portable electronic device being interfaced to said apparatus to provide a display on said display panel.

22. The apparatus of claim 21, wherein said portable electronic device is a personal digital assistant.

23. The apparatus of claim 21, wherein said portable electronic device is an electronic book reader.

24. The apparatus of claim 21, wherein said portable electronic device is a mobile telephone.

25. The apparatus of claim 17, in combination with a telephone, said display panel being at least a part of a user interface of said telephone.

26. The apparatus of claim 25, wherein said telephone is a mobile telephone.